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NTE843 Integrated Circuit TV Video IF Phase Locked Loop (PLL) Synchronous Detector

Description:

The NTE843 is a linear IC synchronous detector employing a phase-locked oscillator to demodulate the 45.75MHz video IF signals in color-TV receivers. The NTE843 features AFT voltage for DC control of the tuner; an adjustment for the zero-carrier DC level at the video output terminal; an amplifier arrangement for inverting noise impulses toward the black level; and a separate output terminal (non-inverting) for the sound IF.

The NTE843 is supplied in a 16-lead plastic "power-slab" dual-in-line package.

The "power-slab" package has an inherently low junction-to-case (slab) thermal resistance and lends itself to a wide variety of heat-sink methods, depending on the application requirements.

Features:

- PLL Carrier Oscillator with Wide Pull-In and Hold-In Range
- Excellent Low-Level Detector Linearity
- Noise Inversion at Video Output
- Wide Range, Variable Zero-Carrier Level Adjustment
- Automatic Fine Tuning (AFT) Detector
- Separate Output for Sound Take-Off
- 12V Power Supply

Absolute Maximum Ratings:

Power Supply Voltage	15V
Power Supply Current	100mA
Input Signal Voltage	1V _{rms}
Device Dissipation (Up to T _A = +45°C), P _D	1.4W
Derate Above T _A = +45°C	13.3mW/°C
Thermal Resistance, Junction-to-Ambient, R _{thJA}	75°C/W
Operating Ambient Temperature Range, T _{opr}	-40° to +85°C
Storage Temperature Range, T _{stg}	-65° to +150°C
Lead Temperature (During Soldering, 1/16" from case, 10sec max), T _L	+265°C

Electrical Characteristics: ($V_+ = 12\text{Vdc}$, $f_c = 45\text{MHz}$, $T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Current	$I_8 + I_{10}$		–	60	80	mA
Video–Output Voltage	V_{10}	Zero Carrier Bias Adjust	–	–	7	V
Noise–Inversion Offset Voltage	V_{10}	Referenced to Zero Carrier Level	–0.2	0.3	+0.8	V
Sound IF Take–Off Output	V_9	$V_{10} = 7\text{V}$	–	7.7	–	V
AFT Output Voltage	V_{12}	AFT Defeat Switch Closed	2.4	3.0	3.6	V
Oscillator Pull–In Range			–	3	–	MHz
Oscillator Hold–In Range			–	6	–	MHz
Detector Conversion Gain			26	30	–	dB
Video Bandwidth			–	9	–	MHz
Carrier Rejection at Video		$f_c = 45\text{MHz}$	–	30	–	dB
		$2f_c = 90\text{MHz}$	–	40	–	dB
Video IF Parallel Input Impedance Resistance (Pin4)	R_P		–	4	–	k Ω
Video IF Parallel Input Impedance Capacitance (Pin4)	C_P		–	5	–	pF
Sound Take–Off Output Resistance (Pin9)	R_O	1MHz	–	50	–	Ω
Video Output Resistance (Pin10)	R_O	1MHz	–	50	–	Ω

Pin Connection Diagram

